REMARKS

In the Office Action, claims 1-5, 7-8, 10-18, 20-21, and 23-27 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Satya (U.S. Patent No. 6,751,519) in view of Hsieh (U.S. Patent Publication No. 2003/0060916). Claims 9 and 22 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Satya and Hsieh in view of Atkinson (U.S. Patent Publication No. 2004/0029029). Applicants respectfully traverse the Examiner's rejections.

Independent claims 1, 14, and 27, as amended, include the general features of receiving fault classification data associated with a tool fault condition. The tool fault condition is associated with a process tool for processing a wafer. At least one yield parameter of the wafer is estimated based on the fault classification data.

As the Office Action admits Satya fails to teach fault classification data associated with a tool fault condition. Satya teaches measuring yield characteristics of test structures formed on the wafer to estimate yield for the wafer. See col. 4, lines 59-63, for example. Hence, any fault detection contemplated by Satya relates to wafer fault detection, not tool fault detection.

Hsieh fails to correct this deficiency. Hsieh also measures wafer fault data. Hsieh tracks the tools that process a wafer so that wafer fault data can be linked back to a particular tool. Based on the application of Hsieh, it appears that the position of the Office Action is that Hsieh collects wafer fault data and then associates that data with a tool. This association does not meet the features of the claimed subject matter, even when Satya and Hsieh are combined. In contradistinction thereto, the claimed subject matter includes receiving fault classification data associated with a tool fault condition, where the tool fault condition is associated with a process tool for processing a wafer. Fault classification data specifies the nature of the tool fault

condition. In fault detection and classification (FDC), data is collected associated with a tool. The data may include wafer data as well as tool state data. The collected data is then processed to identify a tool fault condition (*i.e.*, detection). Subsequently, the fault condition is classified to determine what type of fault exists, thereby creating fault classification data (*i.e.*, classification). In the claimed subject matter, the fault classification data is employed to estimate yield parameters of the wafer. Satya teaches estimating yield based on direct yield metrology data. Hsieh teaches identifying a tool fault condition based on wafer defect data. Neither Satya nor Hsieh teach or suggest generating fault classification data for an identified fault condition, and then using that fault classification data to estimate yield parameters. At most, Satya and Hsieh may teach fault detection, where Satya contemplates wafer fault detection and Hsieh contemplates tool fault detection. Neither contemplates fault classification or the subsequent estimating of yield parameters based on the fault classification data.

For at least the aforementioned reasons, it is respectfully submitted that claims 1, 14, 27, and all claims depending therefrom are allowable. The Examiner is invited to contact the undersigned attorney with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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